What is claimed is:

1. A process for preparing 3-pentenenitrile by hydrocyanating 1,3-butadiene in the presence of at least one catalyst, which comprises carrying out the hydrocyanation in a loop reactor having at least one feed line and at least one discharge line, an external pumped circulation system, an inlet tube and at least one jet nozzle for driving the internal circulation.

2. The process according to claim 1, which is carried out continuously.

3. The process according to claim 1 or 2, which is carried out in the liquid phase.

4. The process according to any of claims 1 to 3, wherein the loop reactor is in flooded operation.

5. The process according to any of claims 1 to 4, wherein one or more additional reactors are used for the hydrocyanation in addition to the loop reactor, in which case at least two reactors are connected in series, hydrogen cyanide is introduced into more than one reactor, and 1,3-butadiene and the at least one catalyst are introduced into the first of the reactors connected in series.

6. The process according to any of claims 1 to 5, wherein the hydrogen cyanide is conducted within the loop reactor in an internal inlet tube and the pumped circulation stream is conducted coaxially around this inlet tube.

7. The process according to any of claims 1 to 6, wherein 3-pentenenitrile is withdrawn at the point in the loop reactor where the internal circulation stream has the longest circulation time before the mixing with the driving jet.

8. The process according to any of claims 1 to 7, in which 1,3-butadiene and/or the at least one catalyst are metered into the external pumped circuit.

9. The process according to any of claims 1 to 8, wherein the inlet point for metering the hydrogen cyanide is cooled.

10. The process according to any of claims 1 to 9, wherein a postreactor having tubular characteristics is connected downstream of the loop reactor.